



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,470	06/01/2006	Thomas Lerche	WUE-58	3887

7590 06/14/2010
Thomas J. Burger
Wood Herron & Evans
2700 Carew Tower
441 Vine Street
Cincinnati, OH 45202-2917

EXAMINER

OREILLY, PATRICK F

ART UNIT	PAPER NUMBER
----------	--------------

3749

MAIL DATE	DELIVERY MODE
-----------	---------------

06/14/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,470	Applicant(s) LERCHE, THOMAS	
	Examiner Patrick F. O'Reilly III	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-5 and 7-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5 and 7-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/21/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to applicant's amendment received on September 18, 2009.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on September 21, 2009 is acknowledged. The submission is in compliance with the provisions of 37 C.F.R. § 1.97 and 37 CFR § 1.98 and, therefore, the references therein have been considered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a *structure* altering [both] the direction *and* the impulse of the air jet" recited in claims 2 and 11, and "a *structure* including a rotation device, said *structure* adapted to measure the temperature of the at least one air jet *and* alter the direction *and* the impulse of the air jet dependent upon the measured air jet temperature", must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

Art Unit: 3749

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, amended claim 11 recites “altering the direction *and* the impulse of the air jet depending upon the measured temperature, wherein the *altering occurs via rotation of a structure* including a rotation device” (emphasis added). While the original disclosure provides support for altering the direction of the air jet using a rotation device (see page 6 of the original specification, lines 2-4), the originally-filed specification does not provide support for altering the *impulse* of the air jet via the rotation of a structure. Rather, it appears that the original specification only provides support for altering the impulse of the air jet by changing the cross-

Art Unit: 3749

sectional area of the outlet channel (see e.g., page 5 of the specification, lines 33-37, and page 6, lines 1-2).

7. Moreover, claims 2 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, in lines 6-8, amended claim 11 recites the following limitation: “altering the direction *and* the impulse of the air jet depending upon the measured temperature, wherein the *altering occurs via rotation of a structure* including a rotation device” (emphasis added). Dependent claim 2, which further limits claim 11, recites that “the temperature of the air jet is [also] measured by the *structure* altering the direction *and* the impulse of the air jet” (emphasis added). However, the originally-filed specification of this application does not explain how a *single structure* could be used to alter both the direction and the *impulse* of the air jet via *rotation of the structure*, or how the *same structure* could also be used to measure the temperature of the air jet. Rather, the originally-filed specification appears to disclose two structures for performing these recited functions, namely a *first rotational structure* altering the direction of the air jet based upon a measured temperature thereof and a *second structure* altering the impulse of the air jet by changing its cross-sectional area in accordance with a measured temperature. Consequently, the disclosure provided in this application is insufficient to enable one of ordinary skill in the art to make and/or use a *single structure* to alter both the direction and the *impulse* of the air jet via *rotation of the structure* based upon a measured temperature of the air jet.

Art Unit: 3749

8. Furthermore, claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, in lines 5-8, amended claim 12 recites the following limitation: “[a] *structure* adapted to measure the temperature of the at least one air jet *and* alter the direction *and* the impulse of the air jet dependent upon the measured air jet temperature” (emphasis added). However, the originally-filed specification of this application does not explain how a *single structure* could be used to alter both the direction and the *impulse* of the air jet, or how the *same structure* could also be used to measure the temperature of the air jet. Rather, the originally-filed specification appears to disclose two structures for performing these recited functions, namely a *first structure* altering the direction of the air jet based upon a measured temperature thereof and a *second structure* altering the impulse of the air jet by changing its cross-sectional area in accordance with a measured temperature. Consequently, the disclosure provided in this application is insufficient to enable one of ordinary skill in the art to make and/or use a *single structure* to alter both the direction and the *impulse* of the air jet based upon a temperature of the air jet as measured by the *single structure*.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 3749

10. **Claims 10 and 12** are rejected under 35 U.S.C. 102(b) as being anticipated by Martinez (US 7,084,774). The specification and the drawings in the Martinez reference disclose all of the elements recited in **claims 10 and 12** of this application.

11. Specifically, in regard to claim 12, the Martinez reference discloses all of the claimed elements, including: an aircraft cabin (see col. 6, ln 47-49); a guide pipe (e.g., air vent 610) adapted to direct at least one air jet (e.g., as denoted by the vector in Fig. 6) into the aircraft cabin (see col. 6, ln 47-49); and a structure (e.g., air flow control module, infrared (IR) cameras 201, 202) including a rotation device (because air vent 610 is rotated about an arc 611, the air flow control module inherently includes some kind of rotation device), said structure (air flow control module, IR cameras 201, 202) adapted to measure the temperature of the at least one air jet (via IR cameras 201, 202, which are capable of measuring temperatures at various control points in the air space) and alter the direction and the impulse (speed) of the air jet (e.g., as denoted by the vector in Fig. 6) dependent upon the measured air jet temperature (as detected by IR cameras 201, 202). Refer to Martinez, Figures 3, 6, and 7; column 2, lines 34-39; column 4, lines 27-36; column 6, lines 19-67; and column 7, lines 1-24. Therefore, because all of the elements in claim 12 of this application are disclosed by the Martinez reference, this claim is rejected in accordance with 35 U.S.C. 102(b).

12. In regard to claim 10, Martinez further discloses a sensor (e.g., infrared (IR) cameras 201, 202) adapted to measure the temperature of the air jet (e.g., as denoted by the vector in Fig. 6) at a location spaced away from the guide pipe (e.g., air vent 610). See Martinez, Figures 3 and 6; column 2, lines 34-39; and column 4, lines 27-36. Thus, Martinez meets the language of this claim.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. **Claims 2-5, 7-9, and 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over McCallister (US 2,859,803) in view of Japanese Patent No. 60126536 A (“JP 536”). These two references, when considered together, teach all of the elements recited in **claims 2-5, 7-9, and 11-13** of this application.

15. In particular, claim 11 of this application is obvious when McCallister is viewed in light of the JP ‘536 reference. McCallister discloses the following limitations of the claimed invention, including: directing at least one air jet into the aircraft cabin (aircraft cabin 1 – see Fig. 2), with a guide pipe (fresh air outlet 13) so as to provide fresh air to the aircraft cabin (1). Refer to McCallister, Figure 2; column 2, lines 31-34 and 56-59.

However, claim 11 of this application further discloses the steps of: measuring the temperature of the air jet; and altering the direction and the impulse of the air jet depending upon the measured temperature, wherein the altering occurs via rotation of a structure including a rotation device. McCallister does not disclose these additional steps.

The JP ‘536 reference, although, teaches a method for adjusting the angle of an air-blowing outlet, wherein shape memory alloy elements (7, 11) measure/sense the temperature of the air jet discharged from air outlet (1), and then, alter the direction (by rotating airflow guide

Art Unit: 3749

plate 2) and the impulse (by translating airflow guide plate 2) of the air jet depending upon the measured temperature (as sensed by shape memory alloy elements 7, 11), and wherein the altering occurs via rotation of a structure (2, 4, 7, 11) including a rotation device (rotary member 4), for the purpose of automatically adjusting the discharge angle and the air speed of a supply air jet in response to the air jet temperature so that occupant comfort may be optimized during both heating and cooling modes. See JP '536, Figures 1-2; also refer to attached English abstract for JP '536. Therefore, when McCallister is viewed in light of the JP '536 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the aircraft cabin air-conditioning method of McCallister by additionally measuring the air jet temperature and altering the direction and the impulse of the air jet based upon the measured temperature, wherein the altering occurs via rotation of a structure that includes a rotation device (4), as taught by the JP '536 reference, in order to automatically adjust the discharge angle and the air speed of the supply air jet in response to the air jet temperature so that passenger comfort may be optimized during both heating and cooling modes (i.e., warm air is able to reach the floor during the heating mode). Refer to the attached English abstract for JP '536.

16. In regard to claim 2, the modified aircraft cabin air-conditioning method of McCallister further teaches that the temperature of the air jet is measured by the structure (shape memory alloy elements 7, 11, which are operatively connected to airflow guide plate 2 and rotary member 4) altering the direction and the impulse of the air jet. Refer to JP '536, Figures 1-2; also refer to attached English abstract for JP '536. Therefore, McCallister in view of the JP '536 reference also renders the limitations set forth in this claim obvious.

Art Unit: 3749

17. In regard to claim 3, McCallister further discloses that the air jet is directed into the aircraft cabin (1) from a ceiling area (as shown in Fig. 2). See McCallister, Figure 2.

Consequently, McCallister in view of the JP '536 reference also renders the limitations set forth in claim 3 obvious.

18. In regard to claim 4, the modified air-conditioning method of McCallister further teaches that, as the temperature of the air jet rises, its angle with respect to the vertical is made smaller (during the heating mode, the airflow guiding plate 2 is rotated downward by the action of shape memory alloy element 10, thereby forcing the air jet downward). Refer to JP '536, Figures 1-2; also refer to attached English abstract for JP '536. Thus, McCallister in view of the JP '536 reference also renders the limitations set forth in claim 4 obvious.

19. In regard to claim 5, the modified air-conditioning method of McCallister further teaches that, as the temperature of the air jet rises, its impulse is increased (during the heating mode, the airflow guiding plate 2 is translated inward by the action of shape memory alloy element 7, thereby increasing the blown air speed). See JP '536, Figures 1-2; also refer to attached English abstract for JP '536. Therefore, McCallister in view of the JP '536 reference also renders the limitations set forth in this claim obvious.

20. In particular, claim 12 of this application is obvious when McCallister is viewed in light of the JP '536 reference. McCallister discloses the following limitations of the claimed invention, including: an aircraft cabin (1); and a guide pipe (fresh air outlet 13) adapted to direct at least one air jet into the aircraft cabin (1). Refer to McCallister, Figure 2; column 2, lines 31-34 and 56-59.

Art Unit: 3749

However, claim 12 of this application further discloses a structure including a rotation device, said structure adapted to measure the temperature of the at least one air jet and alter the direction and the impulse of the air jet dependent upon the measured air jet temperature.

McCallister does not disclose these additional limitations.

The JP '536 reference, although, teaches an adjustable air-blowing outlet (1) having a structure (2, 4, 7, 11) including a rotation device (rotary member 4), said structure (2, 4, 7, 11) adapted to measure the temperature of the at least one air jet and alter the direction (by rotating airflow guide plate 2) and the impulse (by translating airflow guide plate 2) of the air jet dependent upon the measured air jet temperature (as sensed by shape memory alloy elements 7, 11), for the purpose of automatically adjusting the discharge angle and the air speed of a supply air jet in response to the air jet temperature so that occupant comfort may be optimized during both heating and cooling modes. See JP '536, Figures 1-2; also refer to attached English abstract for JP '536. Therefore, when McCallister is viewed in light of the JP '536 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the aircraft cabin air-conditioning system of McCallister by adding a structure (2, 4, 7, 11) including a rotation device (rotary member 4) to the air outlets (13), the structure (2, 4, 7, 11) adapted to measure the temperature of the at least one air jet and alter the direction (by rotating airflow guide plate 2) and the impulse (by translating airflow guide plate 2) of the air jet dependent upon the measured air jet temperature (as sensed by shape memory alloy elements 7, 11), as taught by the JP '536 reference, in order to automatically adjust the discharge angle and the air speed of a supply air jet in response to the air jet temperature so that occupant comfort

Art Unit: 3749

may be optimized during both heating and cooling modes (i.e., warm air is able to reach the floor during the heating mode). Refer to the attached English abstract for JP '536.

21. In regard to claim 7, the modified aircraft cabin air-conditioning system of McCallister further teaches that the structure (2, 4, 7, 11) adapted to alter the direction and the impulse of the air jet includes a component (shape memory alloy elements 7, 11) with a temperature-dependent form. Refer to JP '536, Figures 1-2; also refer to attached English abstract for JP '536.

Therefore, McCallister in view of the JP '536 reference also renders the limitations set forth in this claim obvious.

22. In regard to claim 8, the modified aircraft cabin air-conditioning system of McCallister further teaches that the component (7, 11) includes a shape memory alloy. See the attached English abstract for JP '536. Consequently, McCallister in view of the JP '536 reference also renders the limitations set forth in claim 8 obvious.

23. Claim 9 of this application also is obvious when McCallister is viewed in light of the JP '536 reference. As described above, McCallister, as modified by the JP '536 reference, discloses all the elements of base claim 7, the claim upon which this claim depends. However, claim 9 of this application further discloses that the temperature sensing component has a bi-metallic element. McCallister, as modified by the JP '536 reference, does not expressly disclose this additional limitation. Although, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use either the shape memory alloy disclosed in the JP '536 reference for the temperature sensing component, or alternatively, a bi-metallic element for the temperature sensing component as recited in claim 9 of this application, because the applicant has not disclosed that using a bi-metallic element for

Art Unit: 3749

the temperature sensing component provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the applicant's invention to perform equally well with a temperature sensing element in the form of a shape memory alloy, as taught by the JP '536 secondary reference, because a shape memory alloy also readily responds to changes in air temperature by altering its shape. Refer to the attached English abstract for JP '536.

24. In regard to claim 13, the modified aircraft cabin air-conditioning system of McCallister further teaches that the component (7, 11) includes a passive sensor and an actuator element (shape memory alloy elements 7, 11 act as both passive sensors and actuators). See JP '536, Figures 1-2; also see the attached English abstract for JP '536. Thus, McCallister in view of the JP '536 reference also renders the limitations set forth in claim 13 obvious.

Response to Arguments

25. Applicant's arguments with respect to pending claims 2-5 and 7-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 3749

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick F. O'Reilly III whose telephone number is (571) 272-3424. The examiner can normally be reached on Monday through Friday, 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick F. O'Reilly III/
Examiner, Art Unit 3749

Application/Control Number: 10/581,470

Page 14

Art Unit: 3749

/Steven B. McAllister/

Supervisory Patent Examiner, Art Unit 3749